CHAPTER 3

METHOD OF DATA COLLECTION AND ANALYSIS

This study used quantitative methods to collect and analyze the data. Matveev (2002) and Curry, Nembhard, & Bradley (2009) mentioned that quantitative methods allow the researcher to state the research problem in a specific, definable, and set terms, to follow the original set of research goals, to statistically test hypotheses, to specify the independent and dependent variables clearly and precisely, to produce numeric data through standardized processes and instruments with predetermined response categories, to attain high levels of reliability of collected data due to mass surveying, and to reach more objective conclusion by minimizing subjectivity of judgment.

The writer used a quantitative method to answer the research questions. An instrument to collect the quantitative data was a close-ended questionnaire. For the first and second research questions, the writer analyzed the data using descriptive statistics to describe and present the means and the standard deviation (Cohen, Manion, & Morrison, 2007). However, to address the third research questions, she used inferential statistics to make conclusions and predictions based on the collected data (Cohen, Manion, & Morrison, 2007). To examine the correlation between self-efficacy and level of technology comfort she used Pearson Correlation. The independent variables were level of technology comfort. The dependent variables would be students' attitudes and self-efficacy.

3.1 Data Collection

3.1.1 Population and Sample

The participants in this study were the students of Faculty of Language and Arts, Soegijapranata Catholic University. There were 150 active students ranging from sophomores, junior, and senior who participated in this study. Ninety-seven samples are considered as the minimum number to collect quantitative data for 150 populations (Cohen, Manion, & Morrison, 2007). The greater quantity of samples will bring out a better accuracy (Youssef & Agrawala, 2004); therefore, the questionnaire was distributed to 150 students.

3.1.2 Instruments

The writer used a close-ended questionnaire to collect the data. Close-ended questions mean that the respondent has to choose the answer from the choices provided (Krosnick & Presser, 2018). In addition, the writer used Likert Scale in the close-ended questions. Likert Scale usually contains 5-point scale ranging from Strongly Agree, Agree, Neither, Disagree, Strongly Disagree (Bertram, 2007). Below was the scoring system in the questionnaire:

Strongly Disagree = 1

Disagree = 2

Neither = 3

Agree = 4

Strongly Agree = 5

The questionnaire contained 10 statements regarding attitude and 10 questions regarding self-efficacy. The questionnaire was a modification of Yang's study. It comprised three background questions (name, gender, and technology comfort level).

3.2 Research Procedures

There were several procedures to collect the data in this study. First, the writer adopted and modified a questionnaire from the previous study on attitude and self-efficacy towards mobile technology (Yang, 2012). Second, the writer did a pilot study to pre-test or try out of a certain research instrument such as a questionnaire. Pilot study helps the researcher to check the validity and reliability of the questionnaire to minimize the possibility of research failure (Teijlingen & Hundley, 2001). The writer did the pilot study by distributing a questionnaire to fifteen random students of Faculty of Language and Arts who were out of sample. The questionnaire would be considered valid if the r value is more than 0.514 and reliable if the Cronbach's Alpha value is more than 0.60.

Table 1

The Validity Table of the Result of Students' Attitudes

Statements	Rvalue	Rtable	Interpretation
A mobile device can help me attain more ideas.	0.754	0.514	VALID
A mobile device is helpful for me to improve my language skills.	0.748	0.514	VALID
A mobile device can enhance my motivation to learn a language.	0.731	0.514	VALID
A mobile device allows me to express myself in a foreign language.	0.880	0.514	VALID
A mobile device makes learning language easier.	0.456	0.514	INVALID
A mobile device makes me an independent language learner.	0.585	0.514	VALID
A mobile device allows me to access authentic material anywhere and anytime.	0.580	0.514	VALID
A mobile device allows me to access materials faster.	0.619	0.514	VALID
Interacting with peers is easier with a mobile device.	0.543	0.514	VALID

A mobile device can save time in learning a language.	0.627	0.514	VALID

Table 2

The Reliability Table of the Result of Students' Attitudes

Reliability Statistics

Cronbach's Alpha	N of Items
0.847	10

Table 1 showed that the questionnaire regarding attitude had an invalid statement with r value 0.456, thus the writer dropped that statement. Consequently, the questionnaire that would be distributed contained 9 statements regarding attitude. Furthermore, the Cronbach's Alpha value for this data is 0.847. The reliability of the questionnaire regarding attitude is considered good.

Table 3

The Validity Table of the Result of Students' Self-efficacy

Statements	Rvalue	Rtable	Interpretation
I can use a mobile device to download English lessons from internet.	0.704	0.514	VALID
I can access language learning websites using a mobile device easily.	0.797	0.514	VALID
I can find more resources to access authentic language material faster using a mobile device.	0.715	0.514	VALID
I can read language articles using a mobile device effectively.	0.763	0.514	VALID
I can download and install mobile applications for language learning.	0.685	0.514	VALID
I can submit my assignments in a timely manner using a mobile device.	0.466	0.514	INVALID
I can complete my language assignments faster using a mobile device.	0.357	0.514	INVALID

I can execute internet-based language learning assignment well.	0.553	0.514	VALID
I can use Ms. Office applications for language learning.	0.421	0.514	INVALID
I can operate a mobile device for language learning without hesitation.	0.446	0.514	INVALID

Table 4

The Reliability Table of the Result of Students' Self-efficacy

Reliability Statistics

Cronbach's Alpha	N of Items
0.769	10

The questionnaire regarding self-efficacy contained 4 invalid statements (see Table 3). The invalid statements would be dropped from the questionnaire, hence there would be only 6 statements regarding self-efficacy. Furthermore, the questionnaire regarding self-efficacy is considered acceptable since the Cronbach's Alpha value is 0.769.

After finding out the validity and reliability of the questionnaire, the writer distributed the questionnaire to the respondents who were sophomores, junior, and senior of Faculty of Language and Arts. Then, the writer inputted the quantitative data by using SPSS 20.

3.3 Data Analysis

The writer analyzed the data using SPSS 20. The writer used descriptive statistic to find out the mean scores. They helped the writer defined whether or not the result is positive or negative. To find out the correlation between gender and self-efficacy, and the level of technology comfort and self-efficacy the writer used inferential statistics. The table below shows the meaning of the correlation coefficient (Budi, 2006):

Table 5

The Interpretation of Correlation Coefficient

Value of r	**Interpretation**
0.001 – 0.200	Very Weak
0.201 – 0.400	Weak
0.401 – 0.600	Moderate
0.601 – 0.800	Strong
0.801 – 1.000	Very Strong